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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/435,854	11/08/1999	TIMOTHY R. PRYOR	P00891US3	5796

7590 02/12/2004  
LARSON & TAYLOR  
SUITE 900  
1199 NORTH FAIRFAX STREET  
ALEXANDRIA, VA 22314

EXAMINER

ABDULSELAM, ABBAS I

ART UNIT PAPER NUMBER

2674

DATE MAILED: 02/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/435,854

Applicant(s)

PRYOR

Examiner

Abbas I Abdulsalam

Art Unit

2674

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-22 and 27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 and 27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

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## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, see paper # 16, filed 01/20/04, with respect to the rejection(s) of claim(s) 1-22 and 27 under 35 U.S.C. 103(a) have been fully considered and are persuasive.

Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the response made by the applicant.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-22 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zimmerman et al. (USPN 4988981) in view of Hisano et al. (USPN 4654872).

Regarding claims 1, 5, 21 and 27, Zimmerman teaches computer data entry and manipulation method and an apparatus (10) including a glove assembly (12), position sensing receiver assembly (20) around the screen (28). Zimmerman teaches that the glove assembly contains sensors detecting the flexing of the fingers and other gestures of the hand and also contains one or more ultrasonic transducers (17) for transmitting signals to receivers (20).

Further, Zimmerman teaches that the glove assembly sends signals and enters commands into the

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computer (16), and the command relates to the manipulation of virtual objects created by the computer and displayed on the display screen. In addition, Zimmerman teaches that movement by the glove assembly in plane parallel to the display screen produces the corresponding movement by the cursor. See Fig 3, lines 5-52 and FIG 1, col. 1, lines 10-16, col. 3, lines 53-64 and Fig 6. However, Zimmerman does not teach "electro-optically determining , using at least one TV camera, a position of one or more points on a user or an object. On the other hand, Hisano teaches a system for recognizing a three-dimensional object, the system including TV cameras that picks up images of the object. Hisano further teaches that that feature points are extracted from each of at least three images (See the abstract). For example, Hisano teaches that images of an object are formed by the optical systems of two TV cameras (20R, 20L) such that the object has a "feature point", Q as shown in Fig 1, and Fig. 2

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zimmerman's method of manipulating virtual objects to adapt Hisano's identification of "feature points" on an object as shown in Fig. 1 and Fig. 2. One would have been motivated in view of the suggestion in Hisano that the identification of points on the object as illustrated in Fig (1-2) satisfies the desired determination of a position of a point on an object. The use of object-point identification helps recognize the position, shape and size of a three-dimensional object as taught by Hisano.

Regarding claim 2, Hisano teaches the use of two tow TV cameras (20R, 20L). See Fig. 2.

Rearing claim 3, It would been obvious to utilize Hisano's cameras (20R, 20L) in Zimmerman's computer system (10) of Fig. 1.

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Regarding claim 4, see Fig 1 (26, 28).

Regarding claim 6, Zimmerman teaches the distances measured between the glove and the three receivers in terms of coordinates (x, y, z) in rectangular coordinate system. See col. 6, lines 11-32.

Regarding claim 7, Zimmerman teaches a glove with sensors for detecting and flexing of finger joints and contacts on different parts of the hand. See col. 1, lines 42-45.

Regarding claims 8-9 and 11-15, see Zimmerman's Fig 1 (20, 22, 24, 28).

Regarding claims 10 and 22, Zimmerman teaches the method of manipulation with respect to tools such a virtual steering wheel. See col. 1, lines 52-68.

Regarding claims 16-20, Zimmerman teaches that as the user of the system moves his hand in space, the position and orientation of the glove are continuously detected. See col. 8, lines 10-19, and Fig 6 (140).

### **Conclusion**

3. The prior art made of record and not relied upon is considered to applicant's disclosure. The following arts are cited for further reference.

U.S. Pat. No. 6,099,522 to Knopp et al.

4. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Abbas Abdulsalam** whose telephone number is **(703) 305-8591**. The examiner can normally be reached on Monday through Friday (9:00-5:30).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Richard Hjerpe**, can be reached at **(703) 305-4709**.

**Any response to this action should be mailed to:**

Commissioner of patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

**(703) 872-9314**

Hand delivered responses should be brought to Crystal Park II, Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology center 2600 customer Service office whose telephone number is (703) 306-0377.

Abbas Abdulsalam

Examiner

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February 7, 2004

  
**XIAO WU**  
**PRIMARY EXAMINER**